



DEPARTMENT OF TRANSPORTATION  
HAZARDOUS MATERIALS REGULATIONS BOARD  
WASHINGTON, D.C. 20590

4295

[49 CFR Parts 172, 173, 174, 177,  
178, 179]

[Docket No. HM-97; Notice No. 72-1]

TRANSPORTATION OF HAZARDOUS  
MATERIALS

Notice of Proposed Rule Making

The Hazardous Materials Regulations Board is considering amendment of several unrelated sections of the Department's Hazardous Materials Regulations. Commenters need only identify the particular proposal on which they wish to comment when responding. The proposals covered in this document are:

- A—Package markings.
- B—Spelling change for monofluorotrichloromethane.
- C—Empty primed cartridge cases.
- D—Monoethylamine in DOT-5P insulated steel drums.
- E—Organic peroxides in fiberboard boxes and fiber drums.
- F—Phosphorus trichloride in mild steel cargo tanks.
- G—Carbon dioxide.
- H—Hydrogen sulfide in cylinders and multi-unit tank car tanks.
- I—Nitric oxide in specification 106A500X tanks.
- J—Cartridges, practice ammunition.

PROPOSAL A—PACKAGE MARKINGS

The Hazardous Materials Regulations Board is considering amendment of §§ 172.1, 173.401, and 174.545 of the Department's Hazardous Materials Regulations to authorize the marking of packagings containing a mixture or solution with the specific names of the components of the mixture or solution and to require the marking of packagings containing radioactive materials with the proper shipping name.

This proposal is based on a petition by the Compressed Gas Association to permit the marking of compressed gas cylinders containing mixtures with the specific names of the gases which make up the mixtures. CGA has stated that the proposed change would minimize the use of "Compressed Gas, n.o.s.", and would serve to better inform anyone needing to know the contents of the container. The Board agrees with the petitioner and proposes to amend the regulations to authorize the marking of all packagings containing a mixture or solution with the specific names of the components of the mixture or solution, provided each component is shown in roman type in the commodity list in § 172.5(a). It is the Board's opinion that the CGA proposed manner of marking cylinders containing a mixture or solution would be beneficial to anyone needing to know the contents of other forms of packagings containing a hazardous mixture or solution.

This proposal also provides for the marking of packagings containing radioactive materials with the proper shipping name (§ 172.5) unless this marking is

otherwise exempted. The marking requirement for packagings containing radio active materials was overlooked in Docket No. HM-2; Amendment No. 173-3 (33 F.R. 14918).

In consideration of the foregoing, it is proposed to amend 49 CFR Parts 172, 173, and 174 as follows:

I. In § 172.1, paragraph (b) would be added to read as follows:

§ 172.1 Proper shipping name.

(b) When shipping a mixture or solution, with or without water, which otherwise consists only of individual components appearing in roman type (not italics) in § 172.5(a), the marking of the packaging with the name of each individual component of the mixture or solution and the percentage (identified as by weight or volume) that each component is of the total mixture or solution is authorized in place of the appropriate n.o.s. description prescribed in § 172.5(a).

II. In § 173.401, paragraph (a) would be amended to read as follows:

§ 173.401 Hazardous materials.

(a) Packagings containing hazardous materials other than explosives must be marked, unless exempted, with the proper shipping name as shown in the commodity list (see § 172.5(a) of this chapter), except as provided in § 172.1 (b) of this chapter. For explosives, packagings must be marked in accordance with the requirements of § 173.400. For tank cars, this marking must appear either on the placards or commodity cards.

(1) Each portable tank used for the transportation of a hazardous material must be conspicuously and legibly marked, on a background of sharply contrasting color with a sign or lettering on the tank, such as "Corrosive Liquid", "Compressed Gas", or "Flammable Compressed Gas" as appropriate, and with the proper shipping name as shown in the commodity list (see § 172.5(a) of this chapter) except as provided in § 172.1 (b) of this chapter. The height of all required lettering must be at least 2 inches or one-tenth the diameter of the tank, whichever is greater. Each portable tank must be marked with the owner's name. In addition to these markings, the trade name for the contents may be marked on the portable tank: *Provided, however*, That no such marking will be of such size and character as to render the required markings inconspicuous.

III. In § 174.545, paragraph (a) would be amended to read as follows:

§ 174.545 Commodity name on carloads.

(a) Placards for carloads of class B explosives and other hazardous materials must show in the space provided on the placard, the proper shipping name of the commodity as shown in the com-

modity list (see § 172.5(a) of this chapter), except as provided in § 172.1(b) of this chapter. Alternatively, the proper shipping name may be shown on tag board cards measuring approximately 5 by 8 inches securely attached to each side of the car.

PROPOSAL B—SPELLING CHANGE FOR  
MONOFLUOROTRICHLOROMETHANE

The Hazardous Materials Regulations Board is considering an editorial change to §§ 172.5, 173.314, 173.315, and 178.337 of the Department's Hazardous Materials Regulations involving the "Dichlorodifluoromethane - monofluorotrichloromethane mixture" entries. This change would affect the spelling of monofluorotrichloromethane.

This proposal is based on a petition to change the spelling of monofluorotrichloromethane to trichloromonofluoromethane in § 172.5. The Board has proposed that this same spelling change be made in other sections of the regulations. The proposed change would be consistent with descriptions of this commodity found elsewhere in the regulations and would be in accord with the established industry practice of describing similar products by identifying the number of chlorine atoms before the number of fluorine atoms.

In consideration of the foregoing, it is proposed to amend 49 CFR Parts 172, 173, and 178 as follows:

I. In § 172.5(a), the commodity description of "Dichlorodifluoromethane-monofluorotrichloromethane mixture" would be changed to read "Dichlorodifluoromethane - trichloromonofluoromethane mixture".

II. (A) In § 173.314(c) table, the gas description for "Dichlorodifluoromethane-monofluorotrichloromethane mixture; Note 13" would be changed to read "Dichlorodifluoromethane-trichloromonofluoromethane mixture; Note 13."

(B) In § 173.315(a) (1) table, the gas description for "Dichlorodifluoromethane - monofluorotrichloromethane mixture (see Note 9)" would be changed to read "Dichlorodifluoromethane-trichloromonofluoromethane mixture (see Note 9)."

(C) In § 173.315 (h) (2) and (i) (2) the gas description in each table for "Dichlorodifluoromethane - monofluorotrichloromethane mixture" would be changed to read "Dichlorodifluoromethane - trichloromonofluoromethane mixture."

III. In § 178.337-14(a) (1) table, the gas description for "Dichlorodifluoromethane-monofluorotrichloromethane mixture" would be changed to read "Dichlorodifluoromethane-trichloromonofluoromethane mixture."

PROPOSAL C—EMPTY PRIMED  
CARTRIDGE CASES

The Hazardous Materials Regulations Board is considering amendment of



§ 173.107(b) of the Department's Hazardous Materials Regulations to authorize the shipment of empty primed cartridge cases in DOT Specification 21C fiber drums.

A petition has been filed with the Board to amend the regulations as described above.

Shipments have been made in the Specification 21C fiber drum under special permit, with no reported loss of product, for over 6 years. These shipments were restricted to drums rated for 250 pounds net weight.

On the basis of the petition and the satisfactory experience reported, the Board is proposing to incorporate the provisions of the special permit pertaining to packaging of empty primed cartridge cases into the regulations.

In consideration of the foregoing, it is proposed to amend 49 CFR Part 173 as follows:

I. In Part 173 Table of Contents, § 173.107 would be amended to read as follows:

Sec.

173.107 Primers, percussion caps, grenades, empty, primed, and cartridge cases, empty, primed.

II. In § 173.107, the heading and paragraph (b) would be amended to read as follows:

**§ 173.107 Primers, percussion caps, grenades, empty, primed, and cartridge cases, empty, primed.**

(b) Empty cartridge cases, primed, must be packed in strong, tight, outside wooden or fiberboard boxes, or in specification packagings as follows:

(1) Specification 21C (§ 178.224 of this chapter) fiber drum. Each drum must be constructed for at least 250 pounds net weight of contents. Each drum having a metal top or bottom must have a protective corrugated paperboard pad inserted between the contents and the metal.

**PROPOSAL D--MONOETHYLAMINE IN DOT-5P INSULATED STEEL DRUMS**

The Hazardous Materials Regulations Board is considering amendment of § 173.148 of the Department's Hazardous Materials Regulations to provide for the transportation of monoethylamine in DOT-5P insulated steel drums.

This proposal is based on a petition by a special permit holder who has reported satisfactory experience with the shipment of monoethylamine packaged in DOT-5P drums. The regulations presently authorize use of DOT-5 and DOT-5A steel drums for this commodity. It is the Board's opinion that the DOT-5P proposed packaging is equivalent to or better than DOT-5 and DOT-5A packagings. The properties of monoethylamine are similar to the flammable liquid commodities covered by § 173.119 (f) which permits use of DOT-5P drums.

In consideration of the foregoing, it is proposed to amend 49 CFR Part 173 as follows:

I. In § 173.148, paragraph (a)(1) would be amended to read as follows:

**§ 173.148 Monoethylamine.**

(a) \* \* \*

(1) Specification 5, 5A, or 5P (§§ 178.80, 178.81, 178.92 of this chapter). Metal barrel or drum equipped with openings not exceeding 2.3 inches in diameter. Bung labels must be applied and must meet the requirements prescribed in § 173.119(i).

**PROPOSAL E--ORGANIC PEROXIDES IN FIBERBOARD BOXES AND FIBER DRUMS**

The Hazardous Materials Regulations Board is considering amendment of § 173.157 of the Department's Hazardous Materials Regulations to provide for the shipment of benzoyl peroxide, wet with at least 20 percent of water by weight, in specifications 12B and 21C packagings, and to clarify weight limitations in these packagings.

This proposal is based on several petitions from special permit holders who have reported satisfactory shipping experiences with these packagings for over 7 years. In addition, another petition was received from a manufacturer and shipper of benzoyl peroxide requesting clarification of the quantity limitations for the various packagings authorized in § 173.157.

In response to these petitions, the Board proposes to add paragraph (b) in § 173.157 to provide for benzoyl peroxide, wet with at least 20 percent of water by weight, in specification 12B fiberboard boxes and 21C fiber drums.

With respect to the petition requesting clarification of quantity limitations in § 173.157, the Board proposes to make editorial changes to improve the clarity of the text and to eliminate ambiguities relating to commodity weight provisions. Since substantial quantities of certain peroxides have been shipped by manufacturers on a dry weight basis, the Board proposes to amend § 173.157 to accurately reflect authorization for this practice. The terms "dry weight" and "wet weight" are used only to clarify weight provisions in this section and are not intended to affect other sections of the Hazardous Materials Regulations.

In consideration of the foregoing, it is proposed to amend 49 CFR Part 173 as follows:

I. In § 173.157, paragraph (a) and subparagraphs (1), (3), (4), and (5) of paragraph (a) would be amended; paragraph (b) would be added to read as follows:

**§ 173.157 Benzoyl peroxide, chlorobenzoyl peroxide (para), cyclohexanone peroxide, dimethylhexane dihydroperoxide, lauroyl peroxide, or succinic acid peroxide, wet.**

(a) Benzoyl peroxide, chlorobenzoyl peroxide (para), dimethylhexane dihydroperoxide, lauroyl peroxide, and succinic acid peroxide, each wet with at least 30 percent of water by weight, and cyclohexanone peroxide over 50 percent concentration but not exceeding 85 per-

cent concentration, wet, must be in specification packagings as

(1) Specification 15A, 15B, (§§ 178.168, 178.169, 178.170 of this chapter). Wooden box with inside maintainers or lining, specification 2F 25 of this chapter), or with closed inside paper bags lined with ethylene at least 0.002 inch thick inside aluminum drums of at least 1 gage metal throughout. Net weight (dry weight) in each inside DOT-2 container or in each paper bag exceed 1 pound. Gross weight exceed 200 pounds.

(3) Specification 12B (§ 178.21 of this chapter). Fiberboard box with fiber containers securely closed by or gluing, or with securely closed paper bags lined with polyethylene at least 0.002 inch thick. Net weight (dry weight) in each inside container exceed 1 pound. Except for lauroyl peroxide, wet, each inside container be surrounded by asbestos or an inert fire-resistant cushioning material. Gross weight in specification 12B fiberboard box may exceed 65 pounds, but net weight (dry weight) of the contents does not exceed 50 pounds.

(4) Specification 21C (§ 178.224 of this chapter). Fiber drum with closed inside plastic container polyethylene film at least 0.002 inch thick for cyclohexanone peroxide over 50 percent concentration but not exceeding 85 percent concentration, dimethylhexane dihydroperoxide, or benzoyl peroxide, wet with at least 20 percent of water by weight. Authorized net weight (wet weight) in one outside drum may not exceed 100 pounds for cyclohexanone peroxide, 225 pounds for dimethylhexane dihydroperoxide, or 225 pounds for benzoyl peroxide, wet.

(5) Specification 12B (§ 178.21 of this chapter). Fiberboard box with closed inside plastic container polyethylene film at least 0.002 inch thick. Net weight (dry weight) inside container may not exceed 100 pounds. Each inside container be surrounded by asbestos or an inert fire-resistant cushioning material. Authorized only for benzoyl peroxide, wet.

(b) Benzoyl peroxide, wet with at least 20 percent of water by weight, must be packed in specification packagings as follows:

(1) Specification 12B (§ 178.21 of this chapter). Fiberboard box with closed inside paper bag lined with polyethylene at least 0.002 inch thick. Net weight (dry weight) in each bag may not exceed 1 pound. Each bag must be surrounded by asbestos or an inert fire-resistant cushioning material.

(2) Specification 21C (§ 178.224 of this chapter). Fiber drum with closed inside plastic container polyethylene film at least 0.002 inch thick. Net weight (dry weight) in one outside drum may not exceed 100 pounds.



3) Specification 12B (§ 178.205 of this chapter). Fiberboard box with securely closed inside plastic container made of polyethylene film at least 0.004 inch thick. Net weight (dry weight) in each inside container may not exceed 10 pounds. Each inside container must be surrounded by asbestos or an equivalent fire-resistant cushioning material. Net weight (dry weight) in each outside box may not exceed 25 pounds.

**PROPOSAL F—PHOSPHORUS TRICHLORIDE IN MILD STEEL CARGO TANKS**

The Hazardous Materials Regulations Board is considering amendment of § 173.271 to authorize the shipment of phosphorus trichloride in unlined, mild steel, specifications MC 310, MC 311, and MC 312 cargo tanks.

The Manufacturing Chemists Association has petitioned the Board to amend the regulations to provide this authorization. The petition is based on a report that mild steel is widely used in process equipment for producing phosphorus trichloride. Also, the Association states that there is considerable shipping experience covering a period in excess of 10 years in the transportation of this commodity in unlined mild steel tank cars under the terms of § 173.271(a) (11) thus confirming the suitability of mild steel with transportation equipment. Corrosion data have also been supplied covering dry and wet phosphorus trichloride in a mild steel. The Board believes the petition has merit.

In consideration of the foregoing, 49 CFR Part 173 would be amended as follows:

I. In § 173.271, paragraph (a) (8) (iii) would be amended as follows:

**§ 173.271 Phosphorus oxybromide, phosphorus oxychloride, phosphorus trichloride, and thiophosphoryl chloride.**

(a) \* \* \*

(8) \* \* \*

(iii) Tanks made from mild steel or austenitic stainless steel, without lining or cladding. Authorized only for phosphorus trichloride.

**PROPOSAL G—CARBON DIOXIDE**

The Hazardous Materials Regulations Board is considering amendment of § 173.304 of the Department's Hazardous Materials Regulations to authorize the shipment of carbon dioxide in cylinders filled to a maximum density of 68 percent of the water capacity regardless of cylinder capacity.

This proposal is based on petitions to authorize application of the 68 percent maximum filling density requirement to cylinders of all sizes, in place of the present restriction that shipments of more than 50 pounds of carbon dioxide must be made only in cylinders with a rated capacity of either 75 pounds or 100 pounds. The petitions are supported by 7 years of satisfactory shipping experience data reported to the Board by special permit holders.

The Board is of the opinion that carbon dioxide may be charged to a 68 percent maximum filling density and safely transported in any cylinder authorized by the regulations for the shipment of this commodity.

In consideration of the foregoing, it is proposed to amend 49 CFR Part 173 as follows:

Kind of gas	Maximum permitted filling density (see Note 1)	Containers marked as shown in this column or of the same type with higher service pressure must be used except as provided in § 173.34 (a), (b), § 173.301(j) (see notes following table).
(Change)	Percent	
Carbon dioxide, liquefied (see Notes 4 and 7).	68	DOT-3A1800; DOT-3AA1800; DOT-3; DOT-3E1800; DOT-3HT2000; DOT-39.

\* \* \* \* \*

NOTE 3: [Canceled]

\* \* \* \* \*

**PROPOSAL H—HYDROGEN SULFIDE IN CYLINDERS AND MULTIUNIT TANK CAR TANKS**

The Hazardous Materials Regulations Board is considering amendment of §§ 173.304, 173.314, and 179.302 of the Department's Hazardous Materials Regulations to authorize transportation of hydrogen sulfide in cylinders and multiunit tank car tanks equipped with gas-tight caps or plugs applied to valve outlets. In addition, this proposal provides for the use of metal covers over the valves of these multiunit tank car tanks in place of gas-tight valve protective covers now required under § 179.302(a). Cylinders are required to have their valves protected by any one of the various methods prescribed in § 173.301(g).

This proposal is based in part on a petition from the Compressed Gas Association, Inc., requesting amendment of §§ 173.314(c) and 179.302(a). The rule would require hydrogen sulfide to be shipped in multiunit tank car tanks with gas-tight caps or plugs applied to the valve outlets. Present requirements covering the shipment of hydrogen sulfide in these tanks specify that a gas-tight valve protective cover must be used; the valve outlets are not required

I. In § 173.304, paragraph (a) (2) table would be amended; Note 3 would be canceled as follows:

**§ 173.304 Charging of cylinders with liquefied compressed gas.**

(a) \* \* \*

(2) \* \* \*

to be capped or plugged. The use of gas-tight caps or plugs applied to the valve outlets of a tank would eliminate the need for gas-tight valve protective covers. However, metal covers are proposed to be used on these tanks to safeguard the valves against mechanical damage.

In addition, the Board proposes that cylinders used in hydrogen sulfide service be upgraded with similar gas-tight caps or plugs applied to the valve outlets. The use of these gas-tight caps or plugs would prevent leakage from improperly closed or damaged valves. This leakage could result in injury or death, particularly when the cylinder is shipped in a closed vehicle. Therefore, the Board proposes to amend § 173.304(a) (2) to require that cylinders in hydrogen sulfide service incorporate gas-tight caps or plugs to the valve outlets. Valve protection for cylinders is maintained under the provisions of § 173.301(g).

In consideration of the foregoing, it is proposed to amend 49 CFR Parts 173 and 179 as follows:

I. (A) In § 173.304 paragraph (a) (2), the table would be amended; Note 10 would be added to read as follows:

**§ 173.304 Charging of cylinders with liquefied compressed gas.**

(a) \* \* \*

(2) \* \* \*

Kind of gas	Maximum permitted filling density (see Note 1)	Containers marked as shown in this column or of the same type with higher service pressure must be used except as provided in § 173.34 (a), (b), § 173.301(j) (see notes following table).
(Change)	Percent	
Hydrogen sulfide (see Note 10)	62.5	DOT-3A480; DOT-3AA480; DOT-3B480; DOT-4A480; DOT-4BA480; DOT-4BA480; DOT-4BW480; DOT-26-480; DOT-3E1800.

\* \* \* \* \*

NOTE 10: Valve outlets must have gas-tight caps or plugs applied.

\* \* \* \* \*

(B) In § 173.314 paragraph (c) Table, Note 8 would be amended to read as follows:

**§ 173.314 Requirements for compressed gases in tank cars.**

\* \* \* \* \*

(c) \* \* \*

NOTE 8: Tanks may not be equipped with safety-relief devices of any description. Valve outlets must have gas-tight caps or plugs applied. In addition, the valves must be protected by a metal cover.

\* \* \* \* \*

II. In § 179.302 paragraph (a), the table and footnote 5 would be amended; footnote 6 would be added to read as follows:



**§ 179.302 Special commodity requirements for multi-unit tank car tanks.**

(a) \* \* \*

Commodity	Safety relief device	Valve protective housing	Miscellaneous
(Change) Hydrogen sulfide.	Prohibited <sup>1</sup>	Required <sup>2</sup>	(5).

<sup>1</sup> Valve outlets must have gas-tight caps or plugs applied.  
<sup>2</sup> Valves must be protected by a metal cover.

**PROPOSAL I—NITRIC OXIDE IN SPECIFICATION 106A500X TANKS**

The Hazardous Materials Regulations Board is considering amendment of §§ 173.337 and 179.302 of the Department's Hazardous Materials Regulations to permit shipment of nitric oxide in DOT Specification 106A500X tanks.

This proposal is based on a petition for the rule change and is supported by over 2 years of reported satisfactory shipping experience under special permit. Increased safety is provided in that this tank having a test pressure capability of 500 p.s.i.g. will be restricted to a maximum nitric oxide charge of 200 p.s.i.g. at 70° F. At 130° F. the pressure in the tank would be about 230 p.s.i.g. The Board believes the proposal has merit.

In consideration of the foregoing, it is proposed to amend 49 CFR Parts 173 and 179 as follows:

I. In § 173.337, paragraph (a)(4) would be added to read as follows:

**§ 173.337 Nitric oxide.**

(a) \* \* \*

(4) Specification 106A500X (§§ 179.300, 179.301 of this chapter) tanks. Nitric oxide charge in each tank may not exceed 200 p.s.i.g. at 70° F. Each tank must be equipped with gas-tight valve protection caps (see § 179.302 of this chapter). Each valve outlet opening must be made gas-tight by use of a solid screw plug or a screw cap with inert luting or gasket material. Valves must be of stainless steel and the caps, screw plugs, or valve seats must be of material that will not be deteriorated by contact with nitric oxide or nitrogen dioxide. The tank may not be equipped with any safety device.

II. In § 179.302 paragraph (a), the table would be amended as follows:

**§ 179.302 Special commodity requirements for multiunit tank car tanks.**

(a) \* \* \*

Commodity	Safety relief device	Valve protective housing	Miscellaneous
***	***	***	***
(Add) Nitric oxide.	Prohibited <sup>1</sup>	Gas tight <sup>2</sup>	
***	***	***	***

**PROPOSAL J—CARTRIDGES, PRACTICE AMMUNITION**

The Hazardous Materials Regulations Board is considering amendment of §§ 174.538 and 177.848 of the Hazardous Materials Regulations by the addition of loading and storage restrictions for cartridges, practice ammunition. Packaging requirements for these cartridges were prescribed in Docket No. HM-3; Amendment No. 173-6 (34 F.R. 7161), however, the loading and storage restrictions were omitted.

In consideration of the foregoing, it is proposed to amend 49 CFR Parts 174 and 177 as follows:

I. In § 174.538 paragraph (a), the column numbered 4 of the loading and storage chart would be amended in both the vertical and horizontal columns to read as follows:

**§ 174.538 Loading and storage chart of hazardous materials.**

(a) \* \* \*

4—Small arms ammunition, or cartridges, practice ammunition.

II. In § 177.848 paragraph (a), the column numbered 4 of the loading and storage chart would be amended in both the vertical and horizontal columns to read as follows:

**§ 177.848 Loading and storage chart of hazardous materials.**

(a) \* \* \*

4—Small arms ammunition, or cartridges, practice ammunition.

Interested persons are invited to give their views on these proposals. Communications should identify the docket number and the proposal and be submitted in duplicate to the Secretary, Hazardous Materials Regulations Board, Department of Transportation, 400 Sixth Street SW., Washington, DC 20590. Communications received on or before May 31, 1972, will be considered before final action is taken on these proposals. All comments received will be available for examination by interested persons at the Office of the Secretary, Hazardous Materials Regulations Board, both before and after the closing date for comments.

These proposals are made under the authority of sections 831-835 of title 18, United States Code, section 9 of the Department of Transportation Act (49 U.S.C. 1657), and title VI and section 902(h) of the Federal Aviation Act of 1958 (49 U.S.C. 1421-1430 and 1472(h)).

Issued in Washington, D.C., on February 22, 1972.

W J. BURNS,  
Chairman, Hazardous  
Materials Regulations Board.

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